

**Notice of Allowability**

Application No.

09/874,306

Applicant(s)

VARGHESE ET AL.

Examiner

Samuel Broda

Art Unit

2123

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Application 09/874,306 filed 7 June 2001.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ The drawings filed on 07 June 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
**SAMUEL BRODA, ESQ.**  
**PRIMARY EXAMINER**

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### **DETAILED ACTION**

1. Claims 1-12 have been examined.

#### ***Reasons for Allowance***

2. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

The closest prior art of record shows:

- (1) a method of solving axisymmetric cavity flow problems using relaxation and numerical techniques (Brennen, "Cavitation and Other Free Surface Phenomena");
- (2) numerical simulation of nonspherical bubble dynamics using a boundary element method using Green's equation to determine a solution of the Laplace equation (Chahine, "Numerical Simulation of Cavitation Dynamics");
- (3) an examination of flow fields near the closure of a natural partial cavity using particle imaging velocimetry (Leger et al, "Examination of the Flow Near the Leading Edge and Closure of Stable Attached Cavitation");
- (4) an analysis of cavitation based on the design of underwater vehicles (Paster, "Importance of Hydrodynamic Considerations for Underwater Vehicle Design");
- (5) an acoustical cavitation suppressor using an axisymmetric suppressor housing (Ruffa, U. S. Patent 5,717,657); and

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(6) an axisymmetric submarine hull having a shape determined by a solution to a Fredholm integral equation of the second kind (Guevel et al, U. S. Patent 5,024,396).

**2.1** Applicant's set of claims consists of claims 1-12.

Independent claim 1 is directed to a method for calculating parameters for an axisymmetric partially cavitating body; independent claim 7 is directed to a method for calculating cavity length for an axisymmetric partially cavitating body. Each claim identifies the combination of distinct steps of: "formulating disturbance potential matrices for each boundary element panel utilizing disturbance potential equations and no net flux boundary conditions" and "updating the cavity by moving each panel in accordance with the calculated forces and velocities and the boundary conditions."

Because the closest prior art does not appear to teach or suggest the updating of the cavity by moving each panel in conjunction with the no net flux boundary conditions, claims 1-12 are deemed allowable.

**3.** Any comments considered necessary by Applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Samuel Broda, whose telephone number is (571) 272-3709. The Examiner can normally be reached on Mondays through Fridays from 8:00 AM – 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, can be reached at (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (703) 305-3900.



**SAMUEL BRODA, ESQ.  
PRIMARY EXAMINER**